METHOD FOR FORMING A GATE ELECTRODE IN A SEMICONDUCTOR DEVICE

ABSTRACT OF THE DISCLOSURE

A semiconductor device and method of production are disclosed, the method including forming a preliminary gate electrode on a semiconductor substrate, the preliminary gate electrode including a gate oxide layer pattern and a conductive layer pattern stacked on the gate oxide layer pattern, and performing a re-oxidation process for curing damage of the semiconductor substrate and/or a sidewall of the conductive layer pattern, when the preliminary gate electrode is formed by forming an oxide layer on an outer surface of the preliminary gate electrode and on the semiconductor substrate, by supplying an oxygen gas and a chlorine-including gas while restraining a thickness of the gate oxide layer pattern from being increased; and the semiconductor device comprising a preliminary gate electrode formed on a semiconductor substrate, the preliminary gate electrode including a gate oxide layer pattern and a conductive layer pattern stacked on the gate oxide layer pattern, and a re-oxidized semiconductor substrate and/or a sidewall of the conductive layer pattern, with damage cured therein by supplying an oxygen gas and a chlorine-including gas while restraining a thickness of the gate oxide layer pattern from being increased.